

Strategies Promoting Healthy Food Choices among Pupils in Nyeri County, Kenya

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Abstract: In Kenya, nutrition education is included in the school curriculum as recommended in the year 2009 national school health policy. Nevertheless, policy advocacy and communication strategies on nutrition are relatively weak, and there is insufficient focus on operational research on nutrition. In addition, nutrition education is not taught as a standalone subject and is only infused in science subjects. Consequently, the malnutrition problem is not as well understood as it could be. Modern malnutrition consists in over-consumption of energy dense and fatty foods. These have led to an upsurge of non-communicable and lifestyle diseases such as cancer, diabetes, bone and heart conditions. Therefore, there was need to find out strategies on eating habits in order to help pupils acquire discriminative skills among foods. The pupils can act as agents of change in the community through the symbiotic relationship that exists between the school and the society. This will be the first stage towards curbing the food-related health problem. The purpose of this study was to establish strategies promoting healthy food choices among pupils. The Health Belief Model as a predictor of preventive health behaviour was the guide theory for this research. The study was mainly descriptive in design with purposive sampling. The target population was pupils in Nyeri County with their teachers and parents. Data collection tools were semi-structured interviews, and focus group discussions, food diary, and FFQ. Data was analyzed both qualitatively and quantitatively guided by the themes from research objectives. Quantitative data was analyzed using basic descriptive statistics and presented in form of tables, pie charts, graphs, and percentages. The Qualitative analysis involved narrative records and respondents' quotations. The study established strategies that would promote healthy food choices key among them being healthy snacking. The study findings may be used by the Ministry of education to inform nutrition education content in the school curriculum.

Key words: Strategies, Healthy Food Choices

I. INTRODUCTION

Nutrition education (NE) is a food-based strategy which allows for community empowerment through information. It is "any combination of educational strategies, accompanied by environmental supports, designed to facilitate voluntary adoption of food choices and other food- and nutrition-related behaviours conducive to health and wellbeing" (Contento, 2011). There are several benefits of nutrition education to healthy living. These include healthy living due to improved nutritional value of food consumed which may reduce malnutrition and non-communicable

diseases; adequate and nutritive diet leads to improved immune system that may result in decreased ill health and hospitalization. In schools, healthy pupils tend to concentrate more in their studies. This will also improve learning in schools due to increased retention, concentration and completion. Further, members of society will also become a more productive workforce (Sherman and (Muehlhoff, 2007). Nutritional Educational Programs (NEPs) promote communication of information which can improve the quality of living. Nutrition Education is a means of promoting healthier eating habits by educating people in making the right food choices and in carefully preparing and preserving foods which have a good nutritional value (FAO, 2008).

Nutrition education is important as it ensures healthy eating habits which improve healthy wellbeing of pupils and society at large. Pupils may share their NE knowledge with parents which may enable a family to practice healthy eating habits. These include parents, children out of school and the elderly (FAO, 2008). NE takes into account current knowledge and how to improve it and involve promoting healthier food choices within cultural boundaries. The knowledge, attitudes and practices of youngsters can be changed so that they practice healthy eating habits.

The pupils who benefit from NE can act as change agents by spreading the message to a larger segment of the population (Rao, 2008). Ideally NE communicates information which must be understood and the best approach is through schools. This is because children attend schools and they are the existing link between families, schools and communities.

The aim of NE is to encourage movement from a knowledge orientation to a behavioural orientation leading to change of lifestyle that will embrace healthy eating for healthy living. It involves not only imparting information or submitting messages, but also getting people to do something different in order to improve nutrition (Contento, 2002). The effectiveness of NEPs is achieved through appropriate NE messages which are reinforced through school, community and home-based food and nutrition interventions. This enables a desirable healthy eating behavioural change that is sustainable (Sherman and Muehlhoff, 2007).

Nutrition Education plays a role in both increasing elementary school students' knowledge and self-efficiency to select

healthy food options for healthy living. If healthy food choices are not learned at a young age, children will be more susceptible to NCDs such as cardiovascular diseases, type II Mellitus diabetes and cancer among many others (Nutrition standards, 2012).

NE may help improve household food security status and unhealthful food related behaviours. NE is an antidote to populations predisposed to nutritional diseases. NE can be effective in increasing nutrition knowledge associated which may lead to behaviour change and alleviation of NCDs.

Globally, NE has been addressed in a robust way through charters, frameworks, researches, millennium development goals, action plans and policies for food and nutrition and even development of nutrition education curricula (WHO, 1986). FAO (2003) encouraged nutrition through education by the development of booklets which carried NE topics, classified as education for rural people.

In 2004, WHO addressed the increasing burden of NCD using the policy that aimed at tackling NCDs through the risk factors, unhealthy food choices and physical inactivity. The policy aims at environmental changes and empowerment of consumers to exercise individual responsibility.

In FAO (2005) developed a classroom curriculum labeled promoting lifelong healthy eating habits which highlights the purpose of incorporating NE in primary schools in developing countries. The curriculum covers topics such as: food and emotional development; eating habits and cultural and social influences; food, nutrition and personal health; food supply; production; processing and distribution; consumer aspects of food; food preservation and storage and food preparation as well as hygiene and sanitation. These are the parameters of an effective NE.

In the United States of America (USA) and the UK, a NE intention program proved both effective and efficient on promotion of vegetable and fruits consumption. This was promoted through the school canteens, posters, hand-out leaflets and training with the aid of fictional cartoon characters. In Honduras, there was an attitude and behaviour change through NE and teaching of agricultural practices on students. The results indicated both crop and dietary diversification. NE was reinforced through classes on nutrition, cooking, agronomy and environmental science (Potenza, 2007). In January of 2010, Michelle Obama announced her childhood obesity initiative to decrease the early onset of obesity by having the federal government partner with local communities (Hellmich, 2010). One of the goals of any NE program is attitudinal change towards one's lifestyle and eating behaviour. This study attempted to discover whether the NE offered in our schools could change attitudes for the better and if it was diverse.

In Northern India, a controlled trial evaluating a multi-component nutrition intervention

in urban adolescents (implemented in the context of concerns about obesity) showed that six months later, the intervention group had improved knowledge, lower consumption of sugar-sweetened drinks and energy-dense foods, greater fruit consumption, and lower BMI (Singhal et al., 2010).

In Africa, South Africa has been leading in NE programs. Some of these include, a community-based NE program that was implemented in Free State and Northern Cape Provinces which indicated improved nutritional measurements amongst children. Also, a food Aid program (FAP) implemented in Free State and Northern Cape Province showed improvement of weight status in children (Walsh, 2002). Another NEP in Boitong, SA was undertaken among school children to combat malnutrition. The results indicated that NE is an important tool for combating malnutrition and aiding in making healthy food choices (Oosthuizen, 2010). The researcher has purposed to examine the strategies that can be used to make NE effective including community involvement.

Kenya's high rates of under nutrition are particularly due to insufficient awareness and knowledge on nutritionally adequate diets and limited resource allocation and capacity to support the implementation of comprehensive nutrition programs among other causes (republic of Kenya, 2008). The immediate causes of malnutrition include inappropriate dietary intake-primary among young children and a high disease burden. Most Kenyans still rely on diets composed primarily of staple foods that are not sufficiently diverse in micronutrients, compromising growth and development.

According to WHO (2016) lifestyle diseases are on the rise due to poor eating habits and are causing most global deaths. Many middle-income countries are now burdened with dietary disorders affecting 35 percent of children under the age of five years. In 2010, only one in every four countries had formulated a policy touching on food. The latest statistics from WHO (2016) indicate that a quarter of Kenyan women and seven percent of men are either overweight or obese. These statistics indicate that the affected children do not properly access education and if they enroll, their performance and retention are inadequate. This could be due to ineffective teaching of NE offered in schools that may also lack the practice needed in order to make the necessary food choices. This issue needs to be investigated.

Statement of the Problem

NCDs are increasingly taking toll of our population where young people are not spared. Overweight and obesity among young population have reached epidemic proportions both internationally and locally. Due to the detrimental health consequences associated with NCDs, there is a need to call for preventive measures. Malnutrition and food related lifestyle diseases like diabetes, bone and heart conditions and cancer are on the rise in Kenya due to limited NE and are the leading cause of deaths (WHO, 2016). According to the 2016 Economic Survey, about 60 percent Kenyans die daily of cancer with most of them diagnosed late due to ignorance.

Youth and children who constitute half of the population that is most affected due to peer pressure and ignorance among other factors. This can greatly affect learning and the cost of living might become prohibitive due to medication and healthcare occasioned by food-related ill health. The school is the most important setting to inculcate NE knowledge, values, attitudes and practices as pupils spend most of their time in the primary school. Although studies have been done to assist in assessing nutritional status (Kirimi, 2014), little attempt has been done on NE as a strategy to improve the quality of life and address NCDs. The task of this study was therefore to explore the contributions of NE in making healthy food choices among primary school children. This could offer valuable insights towards improving NE to enable informed food choice in order to promote healthy living.

Purpose of the study

To establish strategies promoting health food choices.

Objective of the study

Establish strategies promoting health food choices.

II. REVIEW OF RELATED LITERATURE

Nutrition education if well-handled can form a pillar for good health through ensuring a healthy lifestyle. Because life is about choices, the proper choice on what to eat cannot be taken for granted, (WHO, 2013). The current explosion of diabetes even among children is a cause for alarm. It is the time to examine the actual impact of nutrition education offered in our schools and exposes the gap that is leading to unhealthy food choices.

A healthy nutrition offers innumerable health benefits like leading a productive life devoid of expensive medical bills from non-communicable lifestyle's deceases (NCLDs) (World Bank, 2011). The prime cause of NCLSDs is one's lifestyle especially one's choice of what to eat. These diseases are non-infectious and are not caused by pathogens (WHO, 1013). The terminology refers to a variety of conditions such as obesity, cancer, cardio vascular diseases, diabetes, respiratory diseases, and bone diseases among others.

Globally one half of all deaths are from NLSDs with a high proportion of disabilities (WHO, 2013:3). Eating healthy foods and avoiding the fat found in most animal meats is the key to healthy living. This will also reduce incidences of NCLSDs. Obesity has reached epidemic proportions globally, with at least 2.8 million people dying each year. Obesity has traditionally been associated with high income countries, but is now prevalent in low- and middle-income countries (WHO, 2013). Childhood obesity has more than doubled in children and quadrupled in adolescents in the past 30 years. Overweight and obesity are the result of "caloric imbalance" meaning too few calories expended compared to the calories consumed. High cholesterol accounts for roughly 2.6 million deaths and 7.5 million die because of high blood pressure and,

by 2030, deaths due to NCLSDs are expected to increase to 52 million per year (WHO, 2013).

A well-fed population will ensure a healthy people who will in turn assure economic development. An affective nutrition's education will increase returns from the human capital of society (Word bank, 2009). A healthy educated people are the main means of achieving development and stability. This ensures longevity, productivity and socio-economic improvement in society. Education that provides children with basic academic skills and specific knowledge, attitudes and skills related to health is vital to their physical, psychological and social wellbeing (World Bank, 2009). Nutrition education imparts nutritional knowledge, attitudes and skills thus laying a foundation for a Childs healthy development across the entire lifespan. Nutrition education can address the health challenges occasioned by NCLSDs. Schools are dynamic organizations that can respond to changing needs and environment (Groot &Maasen, 2006). Since the school years are a formative time in the development of a person, the setting provides an ideal opportunity for promoting healthy knowledge, attitudes and practices for foods.

NE in schools especially primary schools is important for several reasons. Firstly, it is only at primary level that the majority of learners get their formal education. This is because among about 85% of all learners enrolled in primary schools, only 26% of the eligible ones proceed to secondary schools (WHO, 2010). This implies that the NE acquired at the primary level will form the background of any other informal acquisition of nutrition education. Habits formed early in life can be sustained as learners mature to adulthood. This early learning will empower the children in the fight against NCLSDs. In fact, this is ideal in Kenya since most learners drop out of formal learning at the primary school level (Muia, 2001). Provision of an effective NE on healthy food choices will have ripple effects on successive generations. Kenyan schools can provide a safe and a supportive environment with policies and practices in support of healthy food choices. In addition, a primary school is not only a social institution but also part of the wider community that can be an entry point to knowledge, attitudes and skills for healthy food choices.

Although there is evidence that nutrition knowledge influences behavior changes. It is likely not the only factor in changing food selection behaviours. There seems to be a gap between nutrition knowledge and practices. This gap is evidenced by the prevalence of the NCLDs despite the continued teaching of NE. This calls for a review and documentation of nutrition knowledge, attitudes and practices among learners particularly on their choice of healthy foods.

Globally, nutritional education has been a tool to fight the childhood obesity epidemic. For instance, in January 2010, Michelle Obama announced her childhood obesity initiative meant to decrease the early onset of obesity by having the Federal government partner with local communities (Helmich,

2010). Consistent with this, the primary goal of the government's objective, "Healthy people 2010" (USHHS, 2000) is to decrease the prevalence of obesity among children by promoting physical activity and healthy eating.

Research by the Robert Wood Johnson foundation and two national programs, "Active living research" and "Healthy eating research" have found that increasing access to healthy foods, encouraging physical activity, and decreasing sedentary behaviour can help curb childhood obesity (Lavizzo-Mourey, 2009). Children spend a large amount of time in educational environments; schools have been identified as key venues for the implementation of nutrition education program (Mullen & Shield, 2004). This implies that nutrition education programs that contain only schools-based components can be effective in improving health knowledge. Thus, targeting the school-based setting may be sufficient to increase nutrition knowledge.

However, this type of program is not always successful at increasing consumption of healthy foods. Because not all nutrition programs are equally effective, and their successes in encouraging healthy eating behaviours depend on many different factors, it is important to determine which aspects of these programs are most effective at modifying behaviour over the long term. By comparing outcomes of specific programs that vary home, school and community components, we can acquire a better understanding of how these components work together to produce behaviour change.

One aspect of nutrition education that may be important is the length of the program. Although a shorter program can impact on children's nutritional knowledge about healthy eating, they have not all been successful in encouraging behaviour change, for example, a seven-week program addressing healthy food choices in multiple settings (home, school etc) enabled children to make healthier food choices (Ellis, 2008). In addition, it was noted that the children who took part in this nutrition program had an overall decrease in body mass indices. The effectiveness of changing eating behaviour over time raises the possibility that longer nutrition education programs may produce better behavioural outcomes.

In addition to the length of the program, the types of messages communicated to children appeared to affect their willingness to try healthy foods. For instance, it was discovered that while nutrition education encouraged consumers to make healthier choices in general, children did not always consider healthy food desirable (Wardle & Huon, 2000). When told a particular beverage was healthy, children were less likely to consume it and less inclined to ask their parents to buy it in future, compared to the same drink without the healthy label. This study will attempt to establish strategies of not only informing children about healthy food choices, but also encourage more positive perceptions of nutritious and healthy foods. This will be a departure from traditional methods of nutrition education that capitalize on memorization and regurgitation of facts that may be tedious and ineffective. The study will establish an

interactive and practical nutrition education, involving hands on learning, such as cooking classes or computer-based methods (McCullough, 2004), which tend to be more effective in promoting a positive behavioural change in children.

The best known and published programs have been those initiated by the USDA. The Team Nutrition program, which was established by the Food and Nutrition Service of the USDA in 2002, a multifaceted program, which provides nutrition education to both children and parents, offers support for food services at schools, and promotes healthy eating and physical activity (USDA, 2009). Behavioural changes are more marked when multiple channels of communication are employed, involving a wide variety of media such as computers games, colorful posters and interactive online worksheet materials that are catered towards children and their parents. This suggests that programs that provide children with a variety of messages about healthy eating in both the home and school environment may be more effective in improving eating habits. This study will advocate for a nutrition education that does not just occur in the school setting but one that is multifaceted and involving a variety of media.

Nevertheless, not all comprehensive nutrition education programs that focus on providing messages about healthy eating across the home and school environments have demonstrated behavioural change (BloomHoffmanet, 2004). Perhaps the lack of specific exposure to the target food as part of the program limited the actual eating behaviour modification. Research has often supported repeated exposure to a specific healthy food as an effective method for increasing children's consumption and reducing food neophobia (Cooke & Gibson, 2003). Such exposure-based interventions like one undertaken by Reverdy et al (2008) found out that nutrition education that encourages novel healthy foods consumption and provides the opportunity to taste novel foods, decreased neophobia in children aged 8-10 compared to age matched controls. This research will attempt to illustrate whether a combination of information and exposure-based education can effectively enhance children's liking and acceptance of healthy foods.

The study will establish a "whole-school" approach, where classroom learning is linked with practical action endorsed by improvements in the school environment and community participation. It should have a considerable focus on individual practices and an active learner centered methodology (Sherman and Muehloff, 2007). Consumption of unhealthy foods can be addictive and therefore nutrition educators, policy makers, scientific researchers and health-care workers should become increasingly interested in intervention strategies that stimulate health food choices. These intervention strategies when effective can reduce the burden of obesity and related non-communicable diseases such as diabetes, cancers, and cardiovascular conditions. These strategies seem to be lacking as evidenced by the rising incidence of non-communicable diseases. The fourth objective

of this study is to establish strategies that will promote healthy food choices among pupils and subsequent generations.

III. THEORETICAL FRAMEWORK

Health Believe Model (HBM)

This study proposed to employ the health belief model (Becker, 1974) as the theoretical guide to examine the influence of NE on healthy food choices. The fundamental proposition of the health belief model focuses on six tenets. The tenets are perceived susceptibility and perceived severity of a certain disease, perceived threat of a disease and a calculation of the perceived benefits and barriers of the recommended action which is the preventive health behaviour. Other tenets are self-efficacy and cues to action. Each of these tenets operates on the mind of the individual who has been posed to a health risk and is likely to respond to the situation by taking a prevention action. The cue to change poor eating behaviours may come from pupils themselves, school community members or even society at large because of the symbiotic relationship between school and society. In this study, the expected action is healthy food choice. The modifying factors and cues can influence these perceptions, but the decision-making process is the outcome of mutual interaction of all the six tenets.

The tenets of HBM in relation to this study are perceived susceptibility to developing health effects from not adhering to healthy food choices which could be the real threat of becoming a victim of an NCD. Perceived severity of the health problems that could develop due to unhealthy food choice is another tenet. The degree of perceived seriousness of an NCD that may intensify when an individual becomes concerned with a disease affecting ones' family life, social relations, work and education is another tenet.

Perceived benefits are associated with adhering to healthy food choices which could include leading a life free of NCDs. Perceived barriers that can hinder one from consuming and adhering to healthy food choices which may be factors within one's social or physical environment. Self-efficacy or the belief in being able to successfully follow healthy food choices, and cues to action which can include physical symptoms of a health condition or environmental factors that can motivate people to follow healthy food choices. These could as well be the strategies to promote healthy food choices.

IV. METHOD

The study will employ Descriptive research design. The key informants will be pupils, teachers and parents. The study will be conducted in The Nyeri County. The target population will be primary school pupils in class seven. Therefore, the study targets primary school pupils as the main sample population because they are in their formative years. In this study, three schools were purposively selected whereby one school has urban characteristics while the other has rural characteristics. Among the three, two were public while one was private. The

three schools were expected to be representative of the entire population because nutrition affects every population regardless of milieu. In this study, the researcher used purposively sample Standard seven pupils since the class was representative of other pupils in the school in terms of syllabus coverage as the pupils had covered most of the syllabus. The data collection tools in this study were: Semi Structured Interview (SSI) and FGD, Food Diary (FD) and FFQ. The data collected was analyzed both qualitatively and quantitatively. The qualitative data was sorted into categories and themes guided by research objectives. Quantitative data was presented in form of tables, pie charts, graphs and percentages.

V. RESULTS AND DISCUSSION

The need for effective public health promotion strategies to tackle childhood diet-related diseases such as diabetes and obesity should be well established. The increasing rates of these diet-related diseases in children indicate that widespread and effective solutions have yet to be identified and integrated in the community (Benton, 2004). Accordingly, this research sought to establish strategies that would promote healthy food choices. The interviews and FGDs with the teachers revealed that many of them would like the integration of discussions and promotion of healthy foods into core educational curriculum. As one educator explained "we do a lot of science, language, literacy and math activities without nutrition education." The teachers further pointed out that the curriculum is so academic-oriented that there is hardly time to learn about healthy foods. Therefore, they recommended the integration of healthy food education in the curriculum. One teacher suggested that healthy food education, "should be included in the syllabus as an emerging issue for so far there were only two-gender and H.I.V/AIDS."

This finding again reinforces the important role the promotion of healthy food education can play in schools as it not only reaches the children, but also the teachers, the parents, the siblings, and even the children's' friends outside the schools. The importance of teaching children life skills related to food empowers the children to make healthy individual choices (Drummond, 2010). The interviews with the teachers also revealed that through food production and discussions, they could nature life skills within the children by building knowledge and capabilities relating to food preparation, meal planning and portion control. Meal portions have greatly increased over the past years which has depended heavily on visual cues and using their eyes in deciding how much to eat, rather than relying on their stomachs (North et al 2005).

For example, one teacher stated that, "many people decide to stop eating when the bowl is empty, instead of using their stomachs as a means of how much to eat, they use their eyes." Uncertainty of what a serving looks like can also lead to larger portions, causing people to eat more of the large portions. Additionally, larger portions teach them that feeling stuffed is equated to feeling satisfied and therefore people become

unable to regulate their food intake. (Gortmaker et al, 2006). Apart from teaching the food pyramid, educators should guide on meal times. One parent advised, "There are fruits one should not eat after having food because they take long to digest and ferment the food." Another added, "Even cold-water ferments food if taken after meals causing acid in the stomach." All the respondents however lamented that such nutrition education was lacking.

Teachers/Parents semi-structured interviews and FGDs

The need for effective public health promotion strategies to tackle childhood diet-related diseases such as diabetes and obesity were well established as follows:

- Eat together during a meal or snack
- Role model cooking and healthy snacking
- Introduce new foods along with foods they like
- Don't use food as a reward
- Offer food high in nutrition content
- Limit juice to 4-6 oz. a day
- Offer low fat dairy products
- Minimize the use of high fat and high sugar ingredients
- Involve children in food cycle
- Provide reasonable portion sizes

In detail, the rise in diet-related diseases in Kenyan culture signifies the need for a paradigm shift in societal norms regarding our perceptions of how our food choices affect our health, the health of the environment, and the link between the two. All of these food-related activities, besides generating in children an interest in healthy foods, also aids in the creation of very important life skills involving knowledge and capabilities related to food buying, food growing, meal planning, food preparation, and portion controlling. These are very important skills for children to develop (Drummond, 2010), and both the parents and teachers acknowledged the importance of teaching these skills and capabilities both in the home environment and in the classroom.

As one parent mentioned, " children should participate in measuring, stirring, putting toppings to setting the tables and singing songs and prayers with parents / guardians while preparing the meal." Further parents suggested that children should be engaged in gardening. They said " every parent/guardian should have a kitchen garden in which their children should help in planting and weaning." Another parent put in," most vegetables should come from home gardens instead of buying." All the respondents agreed that all caliber of consumers should be exposed to food traceability which involves the selection, storage, preparation and ingredients, cooking and serving of a food (Drummond,2010). To this effect, one parent complained that," if a consumer bothered to trace 'mutura', one would never buy it." Mutura is a meat- snack typical of kikuyu community made of intestines stuffed with meat. On the same note, a teacher remarked that,

"nowadays people are consuming a lot of chemicals in foods and drinks, and consumers should know how they are grown, processed, and packaged. "This would raise consciousness of healthy foods and the connections between our food choices, our health, and the health of the environment. Additionally, traceability would also help consumers to acquire foods that would neutralize the effects of the unhealthy foods. One teacher commented," Acv should be used after spoiling oneself." It emerged that acv meant: apple-cedar-vinegar which is usually used to clear the harmful effects of unhealthy foods consumption.

The discussion with the parents /guardians revealed that discussions with their children at home about food and healthy eating were important-that there should be a trend of utilizing mealtimes to discuss this topic. As one respondent stated, " during meals we should discuss why we need to eat a variety of foods and what benefits each food has," Another guardian mentioned, " we should often talk about the importance of a well-balanced meal and how food helps our bodies grow." Additionally, they revealed that discussions about the origins of foods were necessary. They confirmed that parents should prompt the discussions about the origins of foods and what the foods were made from. As one respondent explained, " we should discuss what various foods are made from and where they are got from. "Such discussions need to be initiated during early childhood in order to create lifelong eating habits and behaviours (Lynch & Batal, 2011).

They emphasized the need to raise consciousness about NCLDs, dislocate the junk food from peoples' lives and bring real food into their lives. They all claimed that they were not taught about healthy food choices and they consumed what was available. The impact of this revolution toward junk food was believed to have resulted in our society losing cultural food elements, in addition to the decline in our populations' health. It was lamented, " we are losing our ground here, we are losing cultural elements." One parent asserted that unhealthy eating should be declared as a state of emergency. Another suggested that the paradigm shift should also cut across cultural barriers. The parent claimed that her children do not eat the eel and fish. They claim that eel is a snake and fish is not their cultural food. Such cultural stereotypes can only be dismantled through incorporating healthy food education into the curriculum. Such an education should go to teachers too, because the teacher training curriculum was also lacking in healthy food education.

The idea of nutrition and food education as a tool to raise consciousness of healthy foods was thoroughly discussed. It was noted that there is need and an opportunity for food and nutrition education to be incorporated into the curriculum of child care centers and schools. They teachers stated, " there is no time dedicated to nutrition education in schools." However, some parents acknowledged that private schools had tried to infuse the topics during parents' meeting in the schools. They suggested that such guidance on healthy foods should be extended to chiefs' barazas and church meetings.

There was also support for healthy food education to be incorporated into a child's home life as well. They stated; "By making them part of the process, bringing them together as a group, awakening their senses and adding the element of fun is very powerful." This would involve children in the food process and help to nature relations between the children and their food and hence making real food to be part of everyday life. This shows that effective educational planning for children should involve a group environment that is engaging; play-based and utilized sensory experiences to engage the children with the material (Westenhofer, 2001).

One critical element of successful educational strategies is that there should be a focus on providing a variety of healthy foods and those children should be encouraged to taste and explore the foods. This should help break barriers on cultural and religious beliefs that hinder people from consuming healthy foods. One teacher suggested that, "Value addition can be done on traditional foods and packaged into attractive snacks to replace the current high-fat fast foods." Introducing new foods in schools and homes can be done by creating trust and preference in the children for a new food through exposure. This will increase the child's familiarity and a sense of perceived comfort with the food (Aldridge et al., 2009). However, food can be a complex topic to approach given its deeply personal connections and the need for challenging personal changes involved in altering our diets. One parent, a retired health worker stated that, "it is a very complex issue, the food education even when people want it, they don't want to hear the stuff because they know they are going to have to make change, and even though you tell them it is for the better and they are going to feel better."

Accordingly, all the respondents felt there was need for policies. These are supportive policies that include National policies that change the way industry makes food. As one respondent stated, "don't just ban unhealthy foods, ban it from the food itself." Another added, "You can make something taste good without the bad stuff." In addition to National policies, we need municipal policies that can help with the distribution of healthy foods within our communities. The policy oriented strategies can be classified into three; law, marketing and education.

These tools differ on the basis of their reinforcement and reward, and the degree of voluntary change. Education refers to voluntary adaptation of behaviour by providing information to consumers. Marketing also refers to voluntary adaptation of behavior. However, it does so by reinforcing consumers. Law refers to non-voluntary adaptation of behaviours by using coercion and by punishing consumers for noncompliance (Van Rijnsoever et al, 2011).

The summary of the strategies with their corresponding examples were given in the table below

Table: List of intervention strategies and corresponding examples

Interventions	Example
<i>Law</i> Making unhealthier products more expensive	An increase of taxes on high-calorie products
Making healthier products less expensive	A decrease of taxes on low-calorie products
Restricting the promotion of unhealthier products	Prohibition of promotion of high-calorie products at bus shelters
<i>Marketing</i> Promoting healthier products Decreasing the accessibility of unhealthier products Increasing the availability of healthier products	Promotion of a low-calorie product by a famous athlete on behalf of the food supplier Placement of high-calorie products on the bottom shelf and low-calorie products at eyesight in a supermarket Provision of low-calorie alternatives for high-calorie products by food suppliers
<i>Education</i> Providing calorie information of personal choices in relation to choices of others Providing food labels with calorie information Providing information about healthier eating habits	Use of a receipt that indicates the amount of calories one has bought and the amount others buy, implemented in a canteen by the employer Provision of extensive traffic-light labels on food products by food suppliers Provision of information about how to create low-calorie eating habits through a governmental campaign

Healthy Snacking Habits

Data from both the FFQs and Food Diaries indicated that the children ate a lot of snacks. Also, from interviews and discussions all the children reported they would buy sweet and oily snacks if offered some money. One respondent said, "I spend pocket money on sweets, juices and chips." It was worth noting that no pupil would prefer fruits to the tasty snacks. Young children's dietary choices are driven primarily by taste, but by middle school, children are able to draw connections between food and health, and consequences and actions (Contento, 2012). Above all other influences, taste has been confirmed as the largest influence on what snacks children choose.

The researcher also probed from both parents and teachers on what can be done to facilitate healthy snacking. One teacher proposed, "Traditional foods especially the tubers can be packed into attractive snacks." This would definitely be a form of marketing the already neglected traditional foods. There is an increased inclination to replace traditional meals with energy-dense imbalanced foods. The rise in obesity has been paralleled by the rise in the food industry's budget for marketing to children. Placing common cartoon characters on food packaging has become a marketing strategy to appeal to children. However, to the contrary, there is evidence of this marketing strategy being successful when promoting healthy foods to children (Roberto CA, et al, 2010). In addition to marketing, older adults and peers can offer similar influences over children's food selections. Children observe, and are sensitive to, how others react when trying a new food. They may decide from someone else's reaction whether they want

to try it or not. In a study that observed the effect of modeling on a child's food preferences and willingness to try a new food, it was revealed that children prefer to try foods that have been eaten by children of the same age and gender, and who showed positive responses to those foods (Frazier BN. et al., 2012). Children model the behaviors of others who portray similar characteristics to themselves, and who show pleasure with the behavior in question. It is therefore proposed that when surrounded by peers and older role models, children may more likely breach the walls of comfort by tasting new foods and overcoming neophobia, or fears of new foods. It is the responsibility of the individuals who children admire, such as teachers or parents, to be role models and present children with opportunities to eat healthier snacks while encouraging them to acquire a taste for them.

Another surprising finding was that snacking was increasingly replacing home-prepared foods. A parent acknowledged that she would buy chips and ready meat for supper as she went home from work if she felt too tired to cook. She supported the habit blaming lack of time to cook. She said, "Take away food has saved time and brought a lot of comfort to busy parents. "This finding confirms that parents play a central role in creating behaviours of their children, particularly snacking. A parent's eating behaviours and the eating environment in the home, such as how strict or how involved a parent is in a child's eating, can be significant strategies in the development of healthy eating in a child. Ultimately, the researcher concluded that most of the problem emanates from homes and the respondents agreed that the school should come in strongly in order to avert the situation. One teacher proposed, "School lunch program should be made compulsory so as to outdo the diet mess occasioned in homes." This finding is similar to the study that investigated the impact of altering food environments within a school, and evaluated the impact that food offerings and participation in school lunch program had on children's eating behaviour. It was found that if fruits and vegetables were available, children ate healthier; however, if these healthier food options were competing with less healthy foods such as chips and ice cream, students chose the unhealthy foods, ultimately undermining the effects of healthier school meals (Bevans K. et al., 2011). Accordingly, one respondent had proposed that laws banning unhealthy snacks should be enacted in order to block the competition between healthy and unhealthy snacks. In every case, it appears that more healthful snacking habits are made by consumers with more knowledge. Yet, a first step toward changing dietary habits may be to prompt people to make that first healthful snack choice (Buscher, L.A. et al., 2001).

VI. CONCLUSION

Schools have received more attention as a specific setting for nutrition education than any other, though it was found to be neglected and therefore ineffective. There are no efforts to promote healthy foods in an NCD context and less attention has been placed on skills training. This represents a significant gap given the skills needed to cope with changing life styles

and the changing food environment. The governments-both county and national- may not be aware that nutrition education involves more than direct education, raising the questions of what efforts are needed to communicate the message that nutrition education involves a broader range of multi-component actions.

VII. RECOMMENDATIONS

School-based approaches should be accompanied by broader community interventions – that what is learned in school then extends to the home and the wider community and over the life- course, furthering the promise of the "whole school approach" – the integration of nutrition education in several different forms throughout the whole school, including food served in schools, gardening etc. The private sector should take an active role in nutrition education in the light of its vested interests in both products and advertisements. These should include the development of educational campaigns for healthy products, running nutrition education programs in schools, bringing messages into television programs, developing worksite interventions, and introducing new forms of food labeling.

REFERENCES

- [1] Worsely, A. (2008). Nutrition Knowledge and Food Consumption: Can Nutrition Knowledge Change Food Behaviour?. *Asia Pacific Journal of Clinical Nutrition*, 11,579-585
- [2] W.H.O., (2016) Sunday Nation May 1, page 20,col.2&3: Lifestyle diseases are the leading cause of deaths. Poor eating habits the curse of modern living.
- [3] Velma, N. (2008). Nutrition Knowledge Litudes and Practices of Children from Isinya and Nkoile Primary Schools in Kajiado District, Kenya.
- [4] Van Rijnsoever, F. J., Van Lente, H., & Van Trijp, H. C. M. (2011). Systemic policies towards a healthier and more responsible food system. *Journal of Epidemiology and Community Health*
- [5] Sherma, J. & Muchlloff, E. (2007). Developing nutrition and health education program for primary schools in Zambia. *Journal of nutrition education and behaviour*, 2007.
- [6] Roberto CA, Baik J, Harris JL, Brownell KD. Influence of licensed characters on children's taste and snack preferences. *Pediatrics*. 2010.
- [7] Bureau of statistic (KNBS) and ICF Macro. (2010) Kenya demographic and health survey 2008 -2009. Calverton: KNBS and ICF macro
- [8] Kirimi F.K. (2014). Contributions of school Health Education in promoting Healthy lifestyles in Kenya: Case studies of primary schools in Nairobi County.
- [9] Gortmaker, S. L., Swinburn, B. A., Levy, D., Carter, R., Mabry, P. L., Finegood, D. T., Moodie, M. L. (2011). Changing the future of obesity: science, policy, and action.
- [10] Golley RK, Hendrie GA, Slater A. (2011). Interventions that require parents to improve children's weight-related nutrition intake and activity patterns-what nutrition and activity targets and behaviour change techniques are associated with intervention effectiveness? *Obesity Rev*.
- [11] Food and Agricultural Organization (FAO). "Countries – Kenya." Accessed March 14, 2012. <http://www.fao.org/countries/55528/en/ken/>
- [12] Food and Agricultural Organization (FAO). "Kenya > Economic situation." Accessed March 14, 2012.
- [13] Cochran, W. J. (1997). *Sampling Techniques*. 3rd Edition. New York. Wiley publishers. U.S.A.
- [14] Cochran, W.G. & Cox, G.M. (1992). *Experimental Designs* (2nd Edition). New York. John Wiley & Sons.

- [15] Buscher, L. A., Martin, K. A., & Crocker, S. (January 01, 2001). Point-of-purchase messages framed in terms of cost, convenience, taste, and energy improve healthful snack selection in a college foodservice setting. *Journal of the American Dietetic Association* .by vegetable variety. *Public Health Nutrition*.
- [16] Castillo, J. J. (2009). Statistical Sampling Techniques. Retrieved May 25, 2017 from Explorable.com: <http://explorable.com/statisticalsampling-techniques>.
- [17] Census Bureau, (2010). Statistical Quality Standards. Census Bureau, 2010. U.S. <http://www.census.gov/quality/standards/glossary.html>
- [18] Blom-hoffman, J. T.J. Leff, S. S. (2004). Promoting healthy food consumption among young children.
- [19] Bloor, M. Frankland, J. Thomas, M. and Robson, K. (2003). Focus Groups in Social Research. London. Sage publications.
- [20] Benton, D. (2004). Role of parents in the determination of the food preferences of children and the development of obesity. *International Journal of Obesity*
- [21] Lynch, M. & Batal, M. (2011), 'Factors influencing childcare providers' food and mealtime decisions: An ecological approach.', *Child Care in Practice* 17(2), 185–203.
- [22] Perez-Rodrigo C, Klepp KI, Yngve A, et al. The school setting: an opportunity for the implementation of dietary guidelines. *Public Health Nutr.* 2001;4:717-724.
- [23] Hellmich, N. (2010). Michelle Obama to launch initiative fighting child obesity. *USA Today*. Retrieved from http://www.usatoday.com/news/health/weightloss/2010-01-20-michelle-obama-obesity_N.htm. Accessed March 4, 2010.
- [24] W., Yoo, S., & Ainsworth, P. (2004). Food choice, nutrition education and parental influence on British and Korean primary school children. *International Journal of Consumer Studies*, 28(3), 235-244.
- [25] Borradaile KE, Sherman S, Vander Veur SS, et al. Snacking in children: The role of urban corner stores. *Pediatrics*. 2009;124(5):1293-1298.53
- [26] Groot, W. and H. Maassen van den Brink (2006a), "The Health Effects of Education", *Economics of Education Review*.
- [27] Groot, W. and H. Maassen van den Brink (2006b), "The Health Effects of Education: A Meta-analysis", mimeo. Grossman, M. (2005). Education and nonmarket.
- [28] Contento, I. (2007). Overview of food choice and dietary change: Implications for nutrition education., in 'Nutrition Education: Linking Theory, Research, and Practice.', Jones & Bartlett Publishers, Inc.
- [29] WHO (2011). 'Non-communicable diseases: Media centre fact sheets', World Health Organization, September 2011, <http://www.who.int>.
- [30] WHO (2011). Global Strategy on Diet, Physical Activity and Health. <http://www.who.int/dietphysicalactivity/pa/en/index.html> or contact WHO on dietandhealth@who.int. c World Health Organization 2013.
- [31] WHO (2013). Global Strategy on Diet, Physical Activity and Health; Physical Activity and Young People; recommended levels of physical activity for children aged 5 - 17 years: <http://www.who.int/dietphysicalactivity/pa/en/index.html> or contact WHO on dietandhealth@who.int. c World Health Organization 2013
- [32] WHO, (2007). Physical status: The use and interpretation of anthropometry. Geneva, Switzerland: World Health Organization 2007. WHO Technical Report Series. 270
- [33] WHO, (2008). '2008-2013 Action Plan for the global strategy for the prevention and control of non-communicable diseases', World Health Organization, 2008, <http://www.who.int>.
- [34] WHO, (2009). WHO Country Cooperation Strategy, 2008–2013 – Kenya
- [35] WHO, (2011). 'The Millennium Development Goals and non-communicable diseases', The NCD Alliance, <http://www.ncdalliance.org>.
- [36] WHO, (2011). World Health Organization – Kenya - NCD Country Profiles - 2011.
- [37] WHO, (2011). World Health Organization, *Global Status Report on Non-communicable Diseases 2010* (Geneva: World Health Organization, 2011).
- [38] WHO, (2012). 'Non communicable disease prevention and control', World Health Organisation Programmes, <http://www.afro.who.int>.
- [39] WHO, (2012). Non communicable disease prevention and control', World Health Organisation Programmes, <http://www.afro.who.int>.
- [40] WHO, (2012). World Health Organization, *Tobacco Free Initiative* (Geneva: World Health Organization, 2012).
- [41] Eboh, L.O. & Boye, T.E. (2006). Nutrition Knowledge and Food Choices in Primary School Pupils in Niger – Delta Region Nigeria. *Pakistan Journal of Nutrition*; 5:308-311.